An Essay
on
Conception.

Among the various subjects of Medical science, which for centuries past, have engaged the attention of man, none has excited more his interest & curiosity than that of animal conception or fecundation. And probably no subject in the physical world, has caused more ingenious hypothetical speculations, than that which is the theme of the present dissertation. I say hypothetical speculations, for to use the words of the American Sydenham, "all beyond a certain space on this subject must be conjecture." But conjecture here as well as on other abstruse subjects is not only admissible, but even commendable. This however is not again to be founded upon conjecture, but if possible to be deduced from facts & experiments; from experiments not incompletely or partially made, but from those performed by a hand conducted with all imaginable,

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nicety & attention. But unfortunately, experiments can not readily made, to conduct us far on this thorny path, intersperse with roses; & for this deficiency we are willingly lead to embrace conjecture.

This difficulties however which hover around this gloomy subject should not in the least intercept our experimental enquiry, & if any one should say its want of practical utility, should render it less worthy the object of our attention, I would only reply to such an objection, that the practical use of no one fact can be ascertained, untill the fact itself be known. This then instead of becoming a barrier, should indeed become a stimulus to our exertions. On the subject now before us, a vast deal still remains to be learned, & when I say it is a physiological point worthy of emolition, I say it without any apprehension of contradiction; for all the faculties & operations of the body, nay even life itself must be traced back to that period when from a rude, lifeless & chaotic mass, was hurled into existance one of the greatest & most choice

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productions of nature. These considerations must & even will excite the admiration of the lovers of physiology & philosophy & render it a subject worthy of their examination. It is not to be expected however (let my love for the subject be ever so great) that my weak pen, conducted by so feeble a hand, should shed much light on the matter now under consideration, particularly when we reflect that the labourd productions of the ingenious & the great have still left it to be considered as one of the Arcana of nature.

I intend in the prosecution of this essay, first, to say a few words on the anatomy & physiology of some of the female parts of generation, then in the second place consider some of the latest & most predominant theories of conception & in the third & last place with diffidence offer my own ideas on that subject, as shown from reading & observation. I shall in the whole consult as much brevity as will any ways be consistent with the object of the paper.

I am then agreeably to the order proposed, in the first place, to say a few words on the Anatomy & Physiology of

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some of the female parts concerned in this important process. The first thing here, which would appear naturally to engage our attention is the Uterus. This viscus seems to perform the most important part in this operation of operations. The Uterus is a hollow muscle situated in the cavity of the pelvis, between the bladder & the rectum, & held in that situation principally by means of four ligaments, called lata & rotunda. It has been compared in its unimpregnated state, to a pear somewhat flattened before & behind, with what is called its neck lying most inferior & terminating in what is called the vagina, with an open mouth. The Uterus is of considerable thickness (varying however in different ages) & endowed, of course, with no little of that power inherent in muscles, denominated by physiologists contractility. This viscus has received several divisions, as, body, fundus, neck, & angles. The two parts denominated (but I think improperly) the superior angles, are perforated by two ducts, which will easily admit a hog's bristle. These ducts are the Tol-

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-opian tubes of Anatomists. They are two conical tubes with their apices turned towards the uterus & terminating in the other extremities by fimbriæ or fringes. These ducts run through the ligamenta lata which are duplicatures of the peritoneum, & while some of these fimbriæ lye loose in the cavity of the pelvis, others come in contact & are firmly attached to two bodies denominated the ovaria. The last mentioned bodies are of whitish appearance & oval shape & situated on each side of the fundus of the Uterus. They are connected to the uterus by a kind of short ligament & the ligamentum latum on each side. These bodies are placed between the lamina of the ligamenta lata. They are compond of several little balls or semitransparent vesicles & denominated from their shape & supposed functions the ova. The number of these ova, are different according to different anatomists, but the truth of the matter is that they vary in different women & in the same woman at different times. Conception always diminishes the number,

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& from this circumstance the fluids of these ova were very justly supposed, to be the rudiments of fetuses.

The Vagina the last genital part, upon which I have any thing to observe is a canal leading down from the neck of the Uterus to the opening in the external parts of generation, which has recieved the name of volva. This canal may be considered as musculo membranous & situated between the Rectum & Bladder above, & between the urethra & rectum below. In the young virgin state & particularly in the foetal, a kind of partial partition is made between the internal & external parts of generation, by a circular membrane called by Anatomists the Hymen. This however begins to diminish as the subject advances in years, for the transmission of menstrual blood from, & probably for the admission of the seminal fluid, to the Uterus.

At that period of the female life denominated by Medical men puberty, considerable changes take place in this delicate system, by which vomiting

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desires an excited fancy, while at the same time it is indeed the object of love to the male. This is the period at which the hair begins to pullulate on the pubes, the breast to distend & be clad with all that beauty that our imaginations are capable of picturing. But of all the phenomena which occur at this critical period of the female life, none has so much absorbed our curiosity as that of menstruation. This consists of a periodical discharge of fluid matter from the Uterus. In consequence of this discharge, resembling the blood only in colour, it has been supposed by many not to be blood but a secretion from that fluid. It is not however the object of the writer of this paper, to enter into an examination of the plausibility or impracticability of this or any other theory, nor of the causes of that wonderful phenomenon but he only wishes to observe that the final cause, or to speak more correctly I think, the immediate design thereof, is to prepare the Uterus for impregnation. This supposition is rendered very probable from many facts, all which converge as in a focal point, to prove that conception often takes place immediately after menstruation, than at any other time. These few remarks will suffice as an avenue to the consideration of the second part of an Essay, which

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was to consider some of the latest & most predominant theories of conception.

The first theory then upon which I would venture to cast a reflection, is the theory of D. Darwin. The writings of this physiologer & physician have roused the admiration of the world. And among the various obtuse subjects which he has attempted a elucidation of, that which, now under our immediate notice was not the least important. But equally unfortunate for the fame of Darwin, as for medical science, his genius carried him beyond experimental discovery, & was the sole cause of his absorption in the vortex of his own imagination. This ingenious author supposed, that the foetus preexisted in the Male, & that the Uterus was only designed to act as a receptacle & medium of nourishment for it. The Doctor was led to the adoption of this opinion, principally from two reasons; first, that living animalculae by microscopic vision, were proven to exist in the semen masculinum; & secondly, that by thus raising from this degrading situation, the part of the male, concerned in this important process, he placed the two sexes upon an equal footing with each other in the propagation of our species, the most important function in the animal economy. This theory, as handsome as it may appear when to the eye when first viewed, as delineated by the hand of Darwin, fails upon a more scrutinous examination, proves

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us with many inconquerable objections. If the Uterus, as this writer supposes, was only to act as a nest, & a mother to this little worm in the semen, then a question would naturally arise, ~~if this worm~~ Where can be the necessity of this worm traveling or being sent up ~~to~~ to the ovaria, beyond its place of destiny. And that this is the case is proven by many extraneous conceptions. I am already aware that the advocates of the Darwonian theory, or rather the theory of Hamme & Leewenhuck, for they first agitated it, will attempt a dispersion of this difficulty, by supposing that the first nutriment, that the tender little offspring must receive, was to be derived from the fluids in the ovaria, & that hence we could easily see the necessity of such a journey. To such a conjecture, however ingenious, I am induced to reply, that it is hardly probable that nature would send this fatal germ in pursuit of its own food, but that she in preference would send its nutriment down to the Uterus, there to meet with & be received by this little homunculus; particularly when we consider that it would again have to return to the Uterus its destined port until after parturition. But let us for a moment pass over this & see if no other difficulty is held to our view; it has long been observed, & I think with truth, that what proves too much, proves nothing at all. This unhappily was the misfortune of Darwin, in his theorising this subject.

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For to conclude that fetuses preexist in the male, because living worms were discovered in his semen, is to conclude that vinegar & many other fluids were also filled with preexisting fetuses; for vinegar & other fluids possess the same kind of living animalcule. This argument then of Darwin while instead of corroborating his favorite theory, rather detracted from its plausibility, presents us at the same time with a happy example of his false deductions when carried beyond the punctilio of judgment, by his electric imagination. But, to conclude, ~~have proven~~ the experiments of Spalanzani have proven beyond the least shadow of ambiguity, that in Frogs, the Embryo preexists in the female & hence, by analogy, we would conclude, that the same order of nature was observed in animals of a higher sphere. These, together with many other objections which might be made, as the extravagant loss of fetuses &c. leave no doubt in my mind of the futility of this theory.

The opinions of Pythagoras, Empedocles & Aristotle are all too inconsistent with our present advanced state of knowledge of Physiology, to stand in need of a refutation; in deed, that knowledge alone sufficiently refutes the whole.

And the chymical doctrine which for a long time caused such a clamor both at home & abroad, is equally inconsistent.

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to merit the least of our attention. Of late, however they would not satisfied with any of these hypotheses determined to prosecute this subject with redoubled ardour. And were I to attempt a consideration of all their opinions, this intended short paper, would not only be swelled to the size of a large volume, but I should feel myself completely inadequate to the task, even were I indulged with all that time which the nature of the subject would necessarily require; I should indeed find myself involved in a labyrinth from which by my own exertions I could not be easily extricated. I shall therefore in the sequel only attempt the examination of two of the latest & most cogent of those doctrines. The first of them to which my attention shall be adverted is the theory of absorption. The builders & supporters of this theory are divided into two classes; the one of which supposes, there is a direct communication, between the vagina & ovaria, by direct absorption; the other that the semen being absorbed from the vagina is furnished on the ovaria only thro'

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of absorption, altho its grounds are able & strong & the
facts on which it is built many & favorable, still
is rendered somewhat ambiguous from many other equa-
lly well known facts & observations. But here let
me pause, - is not our reverend father D. R. a believer
in this doctrine? Yes he is. Dare I then ~~again~~ I say
venture to offer a single objection against or even for
a moment to doubt its accuracy? Yes, I am not only
authorized so to do, but what is still better, I am
stimulated to it by that very consoling expression of that
philosopher himself, "that I am happy to see the truth
investigated even at the expense of a refutation of the
theory of a beloved preceptor." The first argument in sup-
port of this doctrine, is that extraveterine factures have been
found upon dissection, where the cavities of the fallop-
ian tubes were completely obliterated; This we do
not pretend to deny or doubt, for we believe it to be
a fact; but our explanation of this acknowledged

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fact, is very different indeed from the explanation given by those who advocate the doctrine of absorption. We believe that this obliteration of the fallopian tubes, in those cases took place after impregnation or fecundation of the ova; or in other words, that conception was anticedent to the obstruction of those canals. How is this extinction generally accomplished? Is it not by inflamation uniting their sides together? This being admitted, is it not very presumable then that this inflamation took place during the venereal congress from some preternatural excitation, or some unnatural thinking applied to them at this critical moment? Is not the affirmative of both these interrogatories rendered probable from a species of inflamation always being present in the uterus during the venereal orgasm? These questions I will not take upon myself to answer, but leave them entirely to the decision of the candid reader himself. The next fact which lead me a step towards the discovery of this theory, was that the hymen has been found complete in the last months of gestation. To this perplexing

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argument, I must reply, that the membrane called the hymen does not form a complete partition between the external & internal parts of generation; but that there is a hole or perforation in the middle thro' which the seminal fluid might have passed. But even for the sake of argument let us admit that cases of pregnancy may & do occur when there is not the least perforation in this membrane; yet this does not prove that there was none during the procreative action of copulation; for it is a well known fact that membranes may be destroyed & again renewed. And the membrane now under our contemplation has been particularly noticed for its liability for regeneration after laceration. And when we consider the very great exertions which must be made by the penis of the male while he is thus engaged in the ardor of the venereal embrace, we can not but conclude, that the hymen must have been rent in pieces in coition, & that from cases of a perfect hymen in the last stages of gestation can only be explained on the principles we have here adopted.

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The arguments or facts which I have mentioned are the principal ones in favour of the doctrine of absorption, & I do not think it necessary to enter into an examination of those of much less weight.

The other theory at which I hinted is the theory of sympathy. Whenever any difficulties occur in the explanation of any of the phenomena of the animal machine, we immediately call in the aid of sympathy. This however is something of which we, or at least I know very little about, the amount however of this sympathetic doctrine is that the penis masculinum produces a peculiar action on the vagina & thro' the medium of sympathy the ovaria takes an similar action; by which some one of the ova already matured & fit for impregnation is fecundated, then up by the fallopian tubes & deposited in the uterus. The basis on which this theory is founded is the same as that on which the doctrine of absorption built; And what was then said, explanatory of those facts, is also applicable on the present occasion. It may be said that I have only explained those facts upon which the theories of absorption & sympathy rest, different from those who

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who advocate those doctrines, but that I have given no direction to this mode of explanation. This I acknowledge, but an attempt to this should be made when I came to throw out my own ideas on that curious operation we call conception. And to this I now wish to call your attention. My ideas on this subject, however are not original, but are very nearly the ideas of the illustrious Haller, & a schedule of them shall first be given, & then my reasons for embracing them. The first position which I would wish to lay down, is that it is very probable, that conception takes place in the ovaria. The second, that the rudiments of the fœtus or the fœtus itself in embryo, preexists in the female ovaria. Third. That the seminal fluid perfects these rudiments or if already perfect excites in them the principle of life. Fourth that the semen is applied to the ovaria thro' the medium of the fallopian tubes, & that this contact of the semen with the ovaria is absolutely necessary for conception. Fifth & last, that the ovum thus impregnated is carried down &

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& deposited in the Uterus, there, to receive its future nourishment & growth.

The first position which I have made is rendered highly probable from the well known fact, that fetuses are often found upon dissection in the ovaria, abdomen & fallopian tubes. Now if the uterus or mamma fœtus was the seat of conception, this would never or very rarely occur; but the fœtus, if extrauterine is very consistent of the idea I have suggested, again it is also supposed the ovaria is the seat of conception in women because it is evident that the ova of Birds are fecundated in their ovaria, or racemus vitalorum.... The second opinion which we have advanced is placed beyond the limits of proof, for all our ideas on this subject are drawn from analogy & analogy can never prove any thing; but by this analogical reasoning we are led to believe that the position is well founded; for the entomologist Spalanzani has certainly proven this to be the case with the ova of Frogs, & it is highly probable, that nature has projected the higher class of animals to the same laws which govern the inferior orders in the

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production of this progeny, when the both sexes are distinct & their union required.

The third opinion, which we laid down, operates very much on the one immediately preceding; & if we adopt the one we will be necessarily led to the adoption of the other.

The fourth thing to be demonstrated, is the manner in which the ova are impregnated, this is the point on which all the disputes of late have hinged. Is it necessary for the semen to be in contact with the ovaria? And if it is how does it arrive there? Each of these questions I have already answered in the affirmative, & it now remains for me to annex a few of those reasons, which have influenced me in my answers. In the first place then, The Abbe Spalanzani has shown by his experiments, that in the fecundation of the eggs of frogs, that the seminal juice was actually required to be in contact with them, & from this we may infer, that the same thing may take place in the other mammalia. Again, we presume that the semen

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does come in contact with the ovaria in conception, & that it is carried to them by means of the fallopian tubes, because ~~the~~ dissections of women who have died in the act of coition, have shown the Uterus & Fallopian tubes distended with semen. Cases of this kind are mentioned both by Cruveilhier & Churchill & is certainly a strong argument in corroboration of the theory I have adopted.

But my preceptor Dr. Dan'l Rex, not satisfied with this, determined to get the thing to the test of experiment. In order to the accomplishment of his design, he took a young doe and confined her. Having made an incision through the abdominal muscles and peritoneum, which laid bare the fallopian tube, he made an excision thereof, of about a half an inch, from each, near their middle, without disturbing in the least either of the ovaria. The external wound being united, she was again introduced into the company of uncastrated male. The venereal appetite was not destroyed, or in the least diminished by this operation; and altho she frequently received the embraces of the male, yet she forever after proved constantly sterile.

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This is not a solitary case in point - for it has often been performed by Doctor Ker from the year 1795 to the present, and with the same result. These very interesting experiments of Doctor Ker - will, I am sure, have very great influence on the mind of every unprejudiced person - But what do these experiments prove? Do they not prove, that the semen must come in contact with the ovaria in conception? or that it is carried to them by the fallopian tubes? I think they do - for if conception was performed by absorption, either direct or indirect, it could have taken place here equally as well, as if the fallopian tubes had been complete, and extra-uterine pregnancy would have been the result - This however was not the case, as was proven by dissection - Again if it was brought about by sympathy, could it not have taken place equally well under these circumstances? My Preceptor as well as my self, were both aware of an objection which might have been offered, namely, that the sympathy between the uterus & ovaria was continuous & by cutting out a portion of

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the tubes, we took away the medium of connection between them, & thereby prevented, that sympathetic operation of the ovaria necessary for impregnation. Dr. Lee in order to see the just weight of this objection, determined to repeat his experiments, somewhat modified. This was effected by taking a sow, laying bare the fallopian tubes, & merely making an incision into them, by which means a cicatrix which entirely destroyed the cavities of these tubes & rendered the animals as in the former experiments completely fruitless. I think here it was plainly shown that sympathy alone, could not perform so great an action, for if it could it would have been accomplished in these cases, for the supposed medium of connection was still remained. It is then by the theory we have advanced, we assign to the fallopian tubes a two fold office, of carrying the semen to the ovaria, & the impregnated ovum to the uterus; but this is no more than what is ascribed by Dawson & others to every part of the absorbent system. Is the semen taken into the fallopian tubes by capillary attraction? Or is it thrown into them by the semen throwing the uterus into violent contractions?

The last thing to which I would wish to call your attention is that the impregnated ovum is taken up by the fallopian tubes

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deposited in the Uterus, there to receive its future nourishment & growth, I am induced to believe this first, from fœtuses being sometimes found in the tubes themselves; second, that it is so, we infer from the passage of eggs in fowls, down to the Uterus by these tubes. Third, that if the fœtus is formed as we have endeavoured to prove in the ovaria & is then found in the Uterus, then it must follow as necessitate rei, that it must have passed thro' these tubes since there is no other avenue thro which it could have passed. That the fœtus thus converges into the uterus, & there receives its nourishment from the mother is acknowledged by all. But the manner in which this performed has not been satisfactorily demonstrated by any one. Is it from imbibition of the liquor amnii, or is it from superficial absorption of this liquor? Does the gradual elimination of this liquor render one of these opinions probable? Or is this nourishment of the fœtus carried on by the umbilical chord, or is it by the whole & each of these modes in succession? These interrogatories I beg leave to refer to the candid reader hoping for a decision, as I feel myself incompetent to the task. With these remarks I submit with with great diffidence this first & imperfect essay, to the examination of my beloved Professors, from whom I with gratitude acknowledge I have received greater part of knowledge on this & all the medical subjects.

Saml. H. Norris.

An Inaugural Dissertation

on Conception

by John H Quinn

1814.